

Remarks

35 U.S.C. § 112

Amendments to the claims have obviated all § 112 rejections.

Support for Amendments

Support for the amendment to claim 6 is found at page 5, line 27 and in all figures.

Support for new claims 32-35 is found on page 9, lines 2-20.

Support for new claim 36 is found on page 9, lines 20-30 and page 6, line 16.

Support for new claim 38 is found on page 10, lines 28-29.

Support for new claim 42 is found on page 6, lines 6-12.

Support for new claim 43 is found on page 7, lines 1-3.

35 U.S.C. § 103

US 5,129,298 (Cresson et al.) discloses a slicing machine comprising a stop plate for the source body 8, said stop plate 9 being transparent, so that the stop plate can be used as a matt screen. The stop plate 9 is of transparent glass, ground glass or translucent glass.

The lighting means of Cresson are located behind the product to illuminate, against the light, the edges of the contact surface of the product on the stop plate functioning as recognition plate (page 2, line 39). Thus, the light is located behind the product and provided for illuminating the edge of the contact surface. Cresson does not provide an overall illumination of the surrounding of the cutting surface. Illuminating the

edges between product and contact surface from the backside only does not suggest or motivate measure for illuminating the surrounding of the cutting surface.

Thus, no hollows are illuminated in the apparatus of Cresson due to the missing illumination around the product.

Due to the stop plate, no side stop is required for leading the product and avoiding floating of the product to the side. In the apparatus of the present invention, gaps would occur, which are not illuminated, when the stop plate is removed and the product is guided by the side stop only. The reason is the missing illumination around the product. The structure suggested therefore teaches away from the present invention since the illumination gaps would cause measurement errors.

The apparatus of Cresson would not work without stop plate, since the cutting speed goes up to 2000 RPM when cutting thin slices. Then, the apparatus of Cresson comprising a stop plate would not work, because the slices can not be transported away from the apparatus. An apparatus inoperable with the proposed modification cannot support an obviousness rejection.

Further a problem of dirt on the stop plate occurs limiting the practical use of the apparatus.

The lamps of the apparatus of Cresson are clearly directed in relation to the distance to the stop plate. Cresson fails to disclose the feature that the lamps in the cutting area provide a lighting ring around the product. The amendments to claims 6, 16, 17 and 19 structurally recite this. Cresson further fails to disclose the fact that one part of the lamps are providing a background illumination and a diffuse light.

The disclosure of the combination of lamps being oriented to deliver radiation vertical backwards inside the tunnel and a suited part of radiation being directed ahead for the upper edge of the product is missing in Cresson. The vertical part of radiation being directed backwards inside the tunnel distinguishes Cresson, because other than in the apparatus of Cresson the light rises from the product in the surrounding of the product itself rather than from the matt screen.

Thus, these areas have to be illuminated accordingly. Cresson fails to suggest or motivate such a recited illumination because Cresson's matt screen is illuminated by use of the lamps at the rear side oriented to deliver radiation directly to the front to the matt screen.

Thus, the method of Cresson is completely based on the stop plate and, therefore, fails to suggest or motivate an illuminating tunnel comprising surrounding diffuse and directed illumination areas.

The apparatus of Cresson can be used for a small variation of products, and has unacceptable inaccuracies.

The present invention does not comprise a stop plate used for the function of a recognition plate in Cresson.

The apparatus of Cresson does not allow fast cutting of thin slices because of the recognition plate (stop plate).

Further, the lamps are placed in the front directly in the cutting area in the present claims. They are surrounding the product completely. Thus, a real illumination tunnel is provided comprising lamps delivering radiation rearwards for illuminating the hold-down-device 7 and possible other parts like a gripper, etc. In the present invention parts

of area 1 provide a diffuse illuminating area acting as bright self-illuminating background. The function is not to brighten up the product, but to lighten itself so that the contour of the surface in this area has a contrast to the dark background. The reason is that it is impossible to detect the contour as contrast between illuminated lighting product surface and not illuminated dark cutting surface in all regions.

It is impractical to provide lighting other by self-illuminating areas as claimed. The teaching of Cresson is inoperable because shadowing occurs by the product with the suggested spotlight solution.

The lamps delivering diffuse radiation with an intensity which is reduced towards the face means that a part of the illumination tunnel (within region 1) itself provides an illuminated smooth background. Said background shines through dust without shadowing. The diffuse light in the area has the effect that the position of the camera is not further restricted.

In practice, light shines through the edges of the product in the area of the edges, i.e., the junction between the product surface and the cutting surface. Further, the diffuse part of the light in region 1 being directed to the front side of the apparatus, where the slices are fed away might be reflected by a belt conveyor. Thus, the segmented fields of lamps having different intensities as recited brings advantages. The distribution of intensity can not be compared with the natural intensity distribution occurring with Cresson to the front side for the simple reason that this area is more distant to the lighting source.

The present claims recite a self-illuminating area provided in the front region.

The self-illuminating background of the present claims is not suggested or motivated by Cresson.

With regard to Rudy, it should be noted that this document discloses a triangulation method so that the light is vertically directed rather than longitudinal. The teaching that vertical illumination results in better contrast cannot be taken from Rudy.

Again, Rudy fails to suggest a diffuse illumination area in the front region. As claimed, the lighting tunnel in the front region provides illuminating completely around the product, except a relative small area of the belt conveyor which cannot be provided with illuminating means.

Further, it should be understood that the product surface shows locally differing orientations so that different orientations of the light direction illuminates the product surface and other parts of the apparatus. The combination of region 1, having a diffuse radiation and the other regions inside the tunnel having directed radiation, results in an improved illumination of the product surface.

Conclusion

Prompt and favorable consideration of this Amendment is respectfully requested.

Respectfully submitted,



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